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Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does not mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

The following report contains a description of the request, request specifications, and results from the modular program run(s).

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Overview for Request to16_cap_mpl2r_wp002_nsdp_v03

Request ID: to16_cap_mpl2r_wp002_nsdp_v03. This is Report 1 of 2.

Request Description: Testing Routine Querying Tools with Known Positive Exposure-Outcome Associations: Risk of Clostridium difficile associated with Clindamycin:

This statistical methods project uses exposure/outcome pairs with known positive associations to test Mini-Sentinel (now Sentinel) routine querying tools, specifically the Cohort Identification and Descriptive Analysis (CIDA) tool in combination with the Propensity Score Matching (PSM) tool. CIDA combines modular programs 3, 6, and 9 into a single program package and creates output that can be used for more complex analytic adjustment in combination with particular Mini-Sentinel/Sentinel statistical analysis tools. [Click here for more information about the CIDA and PSM tools.](#)

The Clostridium difficile and clindamycin pair was a known positive test case used to assess the CIDA and PSM tools. Results from the analysis are available [here](#). This known positive test case assessed oral clindamycin versus penicillins and risk of Clostridium difficile infection. The primary outcome was Clostridium difficile hospitalization, defined as a Clostridium difficile diagnosis (International Classification of Diseases, Ninth Revision, Clinical Modification code 008.45) in any position in inpatient encounters. The analysis also examined a secondary outcome for Clostridium difficile diagnosis that either occurred on an inpatient encounter or on an outpatient encounter as long as that outpatient encounter was accompanied by dispensing of a Clostridium difficile medication treatment within 7 days before or after the encounter (Clostridium difficile treatments included oral vancomycin, nitazoxazide, or fidaxomicin, and oral or intravenous metronidazole).

The CIDA tool was used to identify new users of clindamycin and penicillins. Information generated by the CIDA tool was used by the PSM tool to match cohort members based on propensity score. Propensity scores were calculated with a logistic regression model that included only investigator-specified variables.

Data Source: Data from January 1, 2006 to December 31, 2013 from 10 health plans contributing to the Mini-Sentinel Distributed Database (MSDD) were included in this report. This request was distributed on April 2, 2015.

Notes: Please contact the Sentinel Operations Center Query Fulfillment Team (qf@sentinelssystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

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Glossary of Terms for Analyses Using Cohort Identification and Descriptive Analysis (CIDA) Tool*

- Amount Supplied** - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing. This is equivalent to the "RxAmt" value in
- Blackout Period** - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded
- Care Setting** - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or missing (U)
- Cohort Definition (drug/exposure)**- Indicates how the cohort will be defined: (1) 01: Cohort includes only the first valid incident treatment episode during the query period; (2) 02: Cohort includes all valid incident treatment episodes during the query period; (3) 03: Cohort includes all valid incident treatment episodes during the query period until an event occurs
- Days Supplied** - number of days supplied for all dispensings in qualifying treatment episodes
- Episodes** - treatment episodes; length of episode is determined by days supplied in one dispensing (or consecutive dispensings bridged by the
- Years at Risk** - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.23
- Enrollment Gap** - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence
- Episode Gap** - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered the same
- Event Deduplication** - specifies how events are counted by the MP algorithm: (0): 0: Counts all occurrences of and HOI during an exposure episode; (1) 1: de-duplicates occurrences of the same HOI code and code type on the same day; (3) 3: de-duplicates occurrences of the same HOI group on the same day (eg. de-duplicates at the group level)
- Exposure Extension Period** - number of days post treatment period in which the outcomes/events are counted for a treatment episode
- Exposure Episode Length** - number of days after exposure initiation that is considered "exposed time"
- Lookback Period (pre-existing condition)** - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing)
- Minimum Days Supplied** - specifies a minimum number of days in length of the days supplied for the episode to be considered
- Minimum Episode Duration** - specifies a minimum number of days in length of the episode for it to be considered
- Query Period** - period in which the modular program looks for exposures and outcomes of interest
- Treatment Episode Truncation Indicator** - indicates whether observation of the incident query code during follow-up requires truncation of valid treatment episodes. A value of Y indicates that the treatment episodes should be truncated at the first occurrence of an incident query code. A value of N indicates that the treatment episodes should not be truncated at the occurrence of the incident query code
- Users** - number of members with exposure during the query period. Member must have no evidence of exposure (s) of interest (defined by incidence criteria) in the prior washout period. A user may only be counted once in a query period.
- Washout Period (drug/exposure)**** - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode
- Washout Period (event/outcome)**** - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode

*all terms may not be used in this report

**incident treatment episodes must be incident to both the exposure and the event

Glossary of Terms for Analyses Using Propensity Score Match (PSM) Tool*

- Bias Ranking** - method for ranking/prioritizing covariates for inclusion in the hdPS model. This method yields a variable list in which variables are selected as ranked by the Bross bias formula.
- Covariate Evaluation Window** - number of days before the index date to evaluate the occurrence of covariates of interest. Note: members are required to have continuous enrollment during the covariate evaluation window, regardless of the value included in the "Continuous enrollment
- Covariate Grouping Indicator** - a requester-defined name used to indicate how codes should be grouped to identify a single covariate.
- Exposure association ranking**- default method for ranking/prioritizing covariates for inclusion in the hdPS model. This method yields a variable list in which the variables are selected as ranked by the strength of the relationship between confounder and exposure. This is most suitable for cases where there are fewer than 150 exposed outcomes.
- High dimensional Propensity Score (hdPS)** - allows for selection of empirically identified covariates in addition to and/or without predefined covariates based on the potential for confounding the exposure/outcome association under investigation.
- Mahalanobis Distance**- provides a measure of balance across all variables while accounting for their correlation.
- Matching Caliper**- maximum allowed difference in propensity scores between treatment and control patients. Options are 0.01, 0.025, and 0.05.
- Matching Ratio** - patients in exposed and comparators are nearest neighbor matched by a 1:1 or 1:100 (up to 100) matching ratio.
- Monitoring Period** - used to define time periods of interest for both sequential analysis and simple cohort characterization requests.
- Number of covariates from pool of considered covariates to keep in hdPS model** - The total number of covariates to keep in the hdPS model. Default value is the fewest of 1) 200; or 2) the number of initiators of the exposure of interest.
- Number of covariates to consider for each claim type for inclusion in hdPS model** - The number of covariates that are considered for inclusion in the hdPS model for each claim type (NDC, ICD9 diagnosis, ICD9 procedure, HCPCS, and CPT). If a value of 100 is specified in this field, then 500 covariates will be considered for inclusion (100 for each of the 5 claim types), Default value is 100.
- Outcome Association Ranking**- method for ranking/prioritizing covariates for inclusion in the hdPS model. This method yields a variable list in which the variables are selected as ranked by the strength of the relationship between confounder and the outcome. This is most suitable for
- Predefined Propensity Score Matched Analysis** - performed by default using the Propensity Score Match Tool. Requester-defined covariates are included along with 12 other covariates: 1. Age (continuous) 2. Sex 3. Time (monitoring period) 4. Year of Exposure 5. Comorbidity Score (calculated during requester-defined lookback) 6. Medical Utilization- number of inpatient stays (during requester-defined lookback) 7. Medical Utilization- number of institutional stays (during requester-defined lookback) 8. Medical utilization- number of emergency department visits (during requester-defined lookback) 9. Medical utilization- number of outpatient visits (during requester-defined lookback) 10. Health care utilization- number of other ambulatory encounters (e.g telemedicine, email consults during requester-defined lookback) 11. Drug utilization- number of dispensings (during requester-defined lookback) 12. Drug utilization- number of unique generics dispensed (during requester-defined
- Propensity Score Match Tool** - performs effect estimation by comparing exposure propensity-score matched parallel new user cohorts. The Propensity Score Match Tool generates tables of patient characteristics, stratified by exposure group, for the unmatched cohort and for the 1:1 matched cohort. Tables include measures of covariate balance and the Mahalanobis distance. The program also generates histograms depicting the propensity score distributions for each exposure group, separately for each Data Partner and each monitoring period, before and after matching. Figures include c-statistics. This program provides hazard ratios and 95% confidence intervals, Mantel-Haenszel rate differences, the
- Query Level** - Sentinel routine data queries are grouped into three distinct "levels," indicative of the level of complexity, extent of analytic adjustment, and need for repeated execution and alerting tools (i.e., prospective surveillance).
- Zero Cell Correction** - An indicator for whether to screen variables with a zero correction added to each cell in the confounder/outcome 2x2 table. Recommended when the number of exposed outcomes is fewer than 150.

*all terms may not be used in this report

Table 1. Cohort of New Initiators of Clindamycin and Penicillin at Risk for Inpatient *Clostridium difficile*¹(Unmatched)

Characteristic	Primary Analysis				Covariate Balance	
	Clindamycin		Penicillin		Absolute Difference	Standardized Difference
Patients (N)	N	%/Std Dev ²	N	%/Std Dev ²		
Patient Characteristics						
Gender (F)	465,859	57.7%	4,743,319	53.8%	3.9	0.078
Mean age (Std Dev)	50.0	19.2	37.1	23.3	12.8	0.601
00-18	65,498	8.1%	2,641,921	30.0%	-21.9	-0.557
19-49	314,122	38.9%	3,201,312	36.3%	2.6	0.053
50-64	228,962	28.3%	1,681,538	19.1%	9.2	0.218
65+	199,337	24.7%	1,290,670	14.6%	10.1	0.252
Recorded Use of³:						
Aminoglycosides	875	0.1%	4,897	0.1%	0.0	0.018
Beta Lactam Inhibitors	182	0.0%	802	0.0%	0.0	0.011
Cephalosporins- 1st Generation	23,031	2.9%	226,745	2.6%	0.3	0.017
Cephalosporins- 2nd Generation	3,907	0.5%	42,220	0.5%	0.0	0.001
Cephalosporins- 3rd Generation	7,303	0.9%	98,711	1.1%	-0.2	-0.022
Cephalosporins- 4th and 5th Generation	44	0.0%	271	0.0%	0.0	0.004
Fluoroquinolones	40,911	5.1%	246,341	2.8%	2.3	0.117
H2 Antagonists	24,506	3.0%	203,139	2.3%	0.7	0.045
Injectable Clindamycin	197	0.0%	48	0.0%	0.0	0.021
Injectable Penicillin	70	0.0%	1,294	0.0%	2.2	0.093
Macrolides	60,180	7.4%	457,413	5.2%	0.4	0.044
Other Antimicrobials	8,173	1.0%	54,347	0.6%	0.0	-0.006
Proton Pump Inhibitors	90,661	11.2%	647,882	7.3%	3.9	0.133
Sulfonamides	19,070	2.4%	132,339	1.5%	0.9	0.062
Tetracyclines	17,741	2.2%	104,239	1.2%	1.0	0.079
Recorded History of³:						
Chemotherapy Administration	7,090	0.9%	46,970	0.5%	0.4	0.041
Diabetes	98,213	12.2%	626,992	7.1%	5.1	0.171
Dialysis	1,583	0.2%	7,842	0.1%	0.1	0.028
Immunocompromised State	23,300	2.9%	139,805	1.6%	1.3	0.088
Inflammatory Bowel Disease	12,434	1.5%	95,401	1.1%	0.4	0.040
Health Service Utilization Intensity:						
	Mean	Std Dev	Mean	Std Dev		
Number of generics	4.0	4.1	2.7	3.3	1.4	0.361
Number of filled prescriptions	9.8	12.4	6.3	9.9	3.5	0.313
Number of inpatient hospital encounters (IP)	0.0	0.2	0	0.2	0.0	0.195
Number of non-acute institutional encounters (IS)	0.0	0.4	0	0.2	0.0	0.063
Number of emergency room encounters (ED)	0.1	0.3	0	0.3	0.1	0.248
Number of ambulatory encounters (AV)	1.8	2.9	1.3	2.3	0.5	0.187
Number of other ambulatory encounters (OA)	0.7	1.7	0.4	1.2	0.2	0.165

¹See Appendix B for outcome definition

²Value represents standard deviation where no % follows the value

³See Appendix D for list of codes used to define these covariates

Table 2. Cohort of New Initiators of Clindamycin and Penicillin at Risk for Inpatient *Clostridium difficile*¹ (Matched Predefined Propensity Score, Caliper = .025)

Characteristic	Primary Analysis				Covariate Balance	
	Clindamycin		Penicillin		Absolute Difference	Standardized Difference
Patients (N)	807,769	100.0%	807,769	9.2%		
	N	%/Std Dev ²	N	%/Std Dev ²		
Patient Characteristics						
Gender (F)	465,767	57.7%	464,457	57.5%	0.2	0.003
Mean age (Std Dev)	50.0	19.2	50.5	19.8	-0.6	-0.028
00-18	65,490	8.1%	69,816	8.6%	-0.5	-0.019
19-49	314,079	38.9%	300,416	37.2%	1.7	0.035
50-64	228,898	28.3%	223,207	27.6%	0.7	0.016
65+	199,302	24.7%	214,330	26.5%	-1.8	-0.043
Recorded Use of³:						
Aminoglycosides	874	0.1%	708	0.1%	0.0	0.007
Beta Lactam Inhibitors	181	0.0%	136	0.0%	0.0	0.004
Cephalosporins- 1st Generation	23,016	2.8%	22,352	2.8%	0.0	0.005
Cephalosporins- 2nd Generation	3,906	0.5%	3,620	0.4%	0.1	0.005
Cephalosporins- 3rd Generation	7,301	0.9%	6,313	0.8%	0.1	0.013
Cephalosporins- 4th and 5th Generation	44	0.0%	45	0.0%	0.0	0.000
Fluoroquinolones	40,903	5.1%	37,377	4.6%	0.5	0.020
H2 Antagonists	24,495	3.0%	23,489	2.9%	0.1	0.007
Injectable Clindamycin	52	0.0%	32	0.0%	0.0	0.003
Injectable Penicillin	70	0.0%	87	0.0%	0.4	0.019
Macrolides	60,171	7.4%	56,241	7.0%	0.0	0.005
Other Antimicrobials	8,171	1.0%	7,735	1.0%	0.0	-0.002
Proton Pump Inhibitors	90,633	11.2%	87,411	10.8%	0.4	0.013
Sulfonamides	19,063	2.4%	17,945	2.2%	0.2	0.009
Tetracyclines	17,738	2.2%	15,920	2.0%	0.2	0.016
Recorded History of³:						
Chemotherapy Administration	7,083	0.9%	6,576	0.8%	0.1	0.007
Diabetes	98,186	12.2%	92,399	11.4%	0.8	0.022
Dialysis	1,579	0.2%	1,323	0.2%	0.0	0.007
Immunocompromised State	23,292	2.9%	21,194	2.6%	0.3	0.016
Inflammatory Bowel Disease	12,430	1.5%	11,882	1.5%	0.0	0.006
Health Service Utilization Intensity:						
	Mean	Std Dev	Mean	Std Dev		
Number of generics	4.0	4.1	3.8	4	0.2	0.058
Number of filled prescriptions	9.8	12.4	9.3	11.9	0.5	0.040
Number of inpatient hospital encounters (IP)	0.0	0.2	0	0.2	0.0	0.092
Number of non-acute institutional encounters (IS)	0.0	0.4	0	0.3	0.0	0.000
Number of emergency room encounters (ED)	0.1	0.3	0.1	0.3	0.0	0.149
Number of ambulatory encounters (AV)	1.8	2.9	1.7	2.8	0.1	0.033
Number of other ambulatory encounters (OA)	0.7	1.7	0.6	1.6	0.0	0.018

¹See Appendix B for outcome definition

²Value represents standard deviation where no % follows the value

³See Appendix D for list of codes used to define these covariates

Table 3. Estimates for Inpatient *Clostridium difficile* Events by Analysis Type and Drug Pair

Exposure Definition	New Users	Person Years at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1000 Person Years	Risk per 1000 New Users	Incidence Rate Difference per 1000 Person Years	Difference in Risk per 1000 New Users	Hazard Ratio (95% CI)	Wald P-Value
Unmatched Analysis (Site-adjusted only)										
Clindamycin	807,919	125,079	0.15	879	7.028	1.09	5.70	0.88	4.96 (4.58, 5.38)	<.0001
Penicillin	8,815,441	1,390,335	0.16	1,847	1.328	0.21				
1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model NOT Stratified by Matched Pair)										
Clindamycin	807,769	125,055	0.15	879	7.029	1.09	4.63	0.71	2.93 (2.57, 3.33)	<.0001
Penicillin	807,769	127,065	0.16	305	2.400	0.38				
1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model Stratified by Matched Pair)										
Clindamycin	807,769	119,866	0.15	840	7.008	1.04	4.59	0.68	2.90 (2.53, 3.31)	<.0001
Penicillin	807,769	119,866	0.15	290	2.419	0.36				

Table 4. Estimates for Inpatient *Clostridium difficile* Events by Analysis Type, and Drug Pair, Stratified by Hospitalization in the 60 days Prior to Drug Initiation

Exposure Definition	New Users	Person Years at Risk	Average Person		Incidence Rate per 1000 Person Years	Risk per 1000 New Users	Incidence Rate		Hazard Ratio (95% CI)	Wald P-Value
			Years at Risk	Number of Events			Difference per 1000 Person Years	Difference in Risk per 1000 New Users		
No Hospitalization										
<i>Unmatched Analysis (Site-adjusted only)</i>										
Clindamycin	762,595	118,162	0.15	646	5.467	0.85	4.60	0.71	6.04 (5.48, 6.65)	<.0001
Penicillin	8,578,798	1,353,676	0.16	1,168	0.863	0.14				
<i>1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model NOT Stratified by Matched Pair)</i>										
Clindamycin	761,355	117,969	0.15	639	5.417	0.84	4.09	0.63	4.09 (3.43, 4.86)	<.0001
Penicillin	761,355	119,886	0.16	159	1.326	0.21				
<i>1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model Stratified by Matched Pair)</i>										
Clindamycin	761,355	113,183	0.15	605	5.345	0.79	3.98	0.59	3.90 (3.27, 4.66)	<.0001
Penicillin	761,355	113,183	0.15	155	1.369	0.20				
Hospitalization										
<i>Unmatched Analysis (Site-adjusted only)</i>										
Clindamycin	45,324	6,916	0.15	233	33.688	5.14	15.16	2.27	1.77 (1.53, 2.05)	<.0001
Penicillin	236,643	36,641	0.15	679	18.531	2.87				
<i>1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model NOT Stratified by Matched Pair)</i>										
Clindamycin	37,204	5,676	0.15	214	37.704	5.75	14.19	2.12	1.60 (1.29, 1.99)	<.0001
Penicillin	37,204	5,742	0.15	135	23.512	3.63				
<i>1:1 Matched Predefined PS Analysis; Caliper=0.025 (Cox Model Stratified by Matched Pair)</i>										
Clindamycin	37,204	5,342	0.14	204	38.191	5.48	13.85	1.99	1.57 (1.26, 1.96)	<.0001
Penicillin	37,204	5,342	0.14	130	24.337	3.49				

Appendix A. Generic Names used to Define Exposures and Incidence Criteria in this Request

Generic Name

Clindamycin

CLINDAMYCIN HCL

CLINDAMYCIN PALMITATE HCL

Penicillin

AMOXICILLIN

AMOXICILLIN/POTASSIUM CLAV

AMPICILLIN TRIHYDRATE

BACAMPICILLIN HCL

CARBENICILLIN INDANYL SODIUM

CLOXACILLIN SODIUM

DICLOXACILLIN SODIUM

OMEPRAZOLE/CLARITH/AMOXICILLIN

OXACILLIN SODIUM

PENICILLIN V POTASSIUM

LANSOPRAZOLE/AMOXICILLIN TRIHYDRATE/CLARITHROMYCIN

Appendix B. Codes and Generic Names used to Define Outcomes in this Request

***Clostridium difficile* Event Definition 1**

Code	Description	Code Type	Caresetting
Clostridium difficile			
008.45	Clostridium difficile	International Classification of Diseases, Ninth Revision, Clinical Modification	IP*

***Clostridium difficile* Event Definition 2**

Code	Description	Code Type	Caresetting
Clostridium difficile			
008.45	Clostridium difficile	International Classification of Diseases, Ninth Revision, Clinical Modification International Classification of Diseases, Ninth Revision, Clinical Modification OR	IP*

Code	Description	CodeType	Caresetting
Clostridium difficile			
008.45	Clostridium difficile	International Classification of Diseases, Ninth Revision, Clinical Modification	AV*; ED*

AND

Code	Generic Name		Caresetting
Clostridium difficile treatment dispensing within 7 days of encounter			
	FIDAXOMICIN	National Drug Code	ANY
	METRONIDAZOLE	National Drug Code	ANY
	NITAZOXANIDE	National Drug Code	ANY
	VANCOMYCIN HCL	National Drug Code	ANY
	METRONIDAZOLE HCL	National Drug Code	ANY
	METRONIDAZOLE/SODIUM CHLORIDE	National Drug Code	ANY
	COLLOIDAL BISMUTH SUBCITRATE/METRONIDAZOLE/TETRACYCLINE HCL	National Drug Code	ANY
	BISMUTH SUBSALICYLATE/METRONIDAZOLE/TETRACYCLINE HCL	National Drug Code	ANY
S0030	INJECTION METRONIDAZOLE 500 MG	HCPCS Procedure Code	ANY

Appendix C. Codes and Generic Names used to Define Inclusions/Exclusions in this Request

Code	Generic Name	CodeType	Include vs. Exclude
Prescription for any Antimicrobial			
	AMIKACIN SULFATE	National Drug Code	EXCLUDE
	AMIKACIN SULFATE/PF	National Drug Code	EXCLUDE
	CAPREOMYCIN SULFATE	National Drug Code	EXCLUDE
	GENTAMICIN IN NACL, ISO-OSM	National Drug Code	EXCLUDE
	GENTAMICIN SULFATE	National Drug Code	EXCLUDE
	GENTAMICIN SULFATE/PF	National Drug Code	EXCLUDE
	GENTAMICIN/SODIUM CHLORIDE	National Drug Code	EXCLUDE
	KANAMYCIN SULFATE	National Drug Code	EXCLUDE
	NEOMYCIN SULFATE	National Drug Code	EXCLUDE
	NETILMICIN SULFATE	National Drug Code	EXCLUDE
	PAROMOMYCIN SULFATE	National Drug Code	EXCLUDE
	STREPTOMYCIN SULFATE	National Drug Code	EXCLUDE
	TOBRAMYCIN	National Drug Code	EXCLUDE
	TOBRAMYCIN IN 0.225% NACL	National Drug Code	EXCLUDE
	TOBRAMYCIN SULFATE	National Drug Code	EXCLUDE
	TOBRAMYCIN/SODIUM CHLORIDE	National Drug Code	EXCLUDE
J0278	INJECTION AMIKACIN SULFATE 100 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1580	INJ GARAMYCIN GENTAMICIN UP 80 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1840	INJ KANAMYCIN SULFATE TO 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1850	INJ KANAMYCIN SULFATE TO 75 MG	Healthcare Common Procedure Coding System	EXCLUDE
J3000	INJECTION STREPTOMYCIN UP TO 1 G	Healthcare Common Procedure Coding System	EXCLUDE
J3260	INJ TOBRAMYCIN SULFATE TO 80 MG	Healthcare Common Procedure Coding System	EXCLUDE
J7682	TOBRAMYCIN INHAL NON-CP UNIT 300 MG	Healthcare Common Procedure Coding System	EXCLUDE
J7685	TOBRAMYCIN INHAL CP THRU DME 300 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0016	INJECTION AMIKACIN SULFATE 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0072	INJECTION AMIKACIN SULFATE 100 MG	Healthcare Common Procedure Coding System	EXCLUDE
	AMPICILLIN SODIUM	National Drug Code	EXCLUDE
	AMPICILLIN SODIUM/SULBACTAM NA	National Drug Code	EXCLUDE
	NAFCILLIN IN DEXTROSE,ISO-OSM	National Drug Code	EXCLUDE
	NAFCILLIN SODIUM	National Drug Code	EXCLUDE
	OXACILLIN SODIUM	National Drug Code	EXCLUDE
	OXACILLIN SODIUM/DEXTROSE,ISO	National Drug Code	EXCLUDE
	PENICILLIN G BENZATHINE	National Drug Code	EXCLUDE
	PENICILLIN G POT IN 0.9% NACL	National Drug Code	EXCLUDE
	PENICILLIN G POTASSIUM	National Drug Code	EXCLUDE
	PENICILLIN G PROCAINE	National Drug Code	EXCLUDE
	PENICILLIN G SODIUM	National Drug Code	EXCLUDE
	PIPERACILLIN SODIUM	National Drug Code	EXCLUDE
	PIPERACILLIN SODIUM/TAZOBACTAM	National Drug Code	EXCLUDE
	PIPERACILLIN-TAZO-DEXTROSE,ISO	National Drug Code	EXCLUDE
	TICARCILLIN DISODIUM	National Drug Code	EXCLUDE
	TICARCILLIN/K CLAVULANATE	National Drug Code	EXCLUDE
J0290	INJECTION AMPICILLIN SODIUM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2700	INJ OXACILLIN SODIUM TO 250 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2970	INJ METHICILLIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System	EXCLUDE
S0032	INJECTION NAFCILLIN SODIUM 2 GRAMS	Healthcare Common Procedure Coding System	EXCLUDE
S0081	INJ PIPERACILLIN SODIUM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE

Appendix C. Codes and Generic Names used to Define Inclusions/Exclusions in this Request

Code	Generic Name	CodeType	Include vs. Exclude
	AZTREONAM	National Drug Code	EXCLUDE
	AZTREONAM LYSINE	National Drug Code	EXCLUDE
	AZTREONAM/DEXTROSE-WATER	National Drug Code	EXCLUDE
	DORIPENEM	National Drug Code	EXCLUDE
	ERTAPENEM SODIUM	National Drug Code	EXCLUDE
	IMIPENEM/CILASTATIN SODIUM	National Drug Code	EXCLUDE
	MEROPENEM	National Drug Code	EXCLUDE
C9116	INJ ERTAPENEM SODIUM-1 GM VIAL	Healthcare Common Procedure Coding System	EXCLUDE
C9241	INJECTION DORIPENEM 10 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1267	INJECTION DORIPENEM 10 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1335	INJECTION ERTAPENEM SODIUM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2185	INJECTION MEROPENEM 100 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0073	INJECTION AZTREONAM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0143	AZTREONAM INHAL SOL CONC FORM-GM	Healthcare Common Procedure Coding System	EXCLUDE
	CEFADROXIL	National Drug Code	EXCLUDE
	CEFAZOLIN SODIUM	National Drug Code	EXCLUDE
	CEFAZOLIN SODIUM IN 0.9 % NACL	National Drug Code	EXCLUDE
	CEFAZOLIN SODIUM/D5W	National Drug Code	EXCLUDE
	CEFAZOLIN SODIUM/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFAZOLIN SODIUM/WATER	National Drug Code	EXCLUDE
	CEPHALEXIN	National Drug Code	EXCLUDE
J0690	INJECTION CEFAZOLIN SODIUM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0710	INJ CEPHAPIRIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System	EXCLUDE
J1890	INJ CEPHALOTHIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System	EXCLUDE
	CEFACTOR	National Drug Code	EXCLUDE
	CEFAMANDOLE IN DEXTROSE 5 %	National Drug Code	EXCLUDE
	CEFAMANDOLE NAFATE	National Drug Code	EXCLUDE
	CEFONICID SODIUM	National Drug Code	EXCLUDE
	CEFOTETAN DISOD/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFOTETAN DISODIUM	National Drug Code	EXCLUDE
	CEFOTETAN IN DEXTROSE	National Drug Code	EXCLUDE
	CEFOXITIN SODIUM	National Drug Code	EXCLUDE
	CEFOXITIN SODIUM/D5W	National Drug Code	EXCLUDE
	CEFOXITIN SODIUM/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFPROZIL	National Drug Code	EXCLUDE
	CEFUROXIME AXETIL	National Drug Code	EXCLUDE
	CEFUROXIME SODIUM	National Drug Code	EXCLUDE
	CEFUROXIME SODIUM/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFUROXIME SODIUM/WATER	National Drug Code	EXCLUDE
	LORACARBEN	National Drug Code	EXCLUDE
J0694	INJ CEFOXITIN SODIUM 1 GM	Healthcare Common Procedure Coding System	EXCLUDE
J0697	INJ STERL CEFUROXIME SODIUM 750 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0074	INJECTION CEFOTETAN DISODIUM 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
	CEFDINIR	National Drug Code	EXCLUDE
	CEFDITOREN PIVOXIL	National Drug Code	EXCLUDE
	CEFIXIME	National Drug Code	EXCLUDE
	CEFOPERAZONE SODIUM	National Drug Code	EXCLUDE
	CEFOTAXIME SODIUM	National Drug Code	EXCLUDE

Appendix C. Codes and Generic Names used to Define Inclusions/Exclusions in this Request

Code	Generic Name	CodeType	Include vs. Exclude
	CEFOTAXIME SODIUM/D5W	National Drug Code	EXCLUDE
	CEFPODOXIME PROXETIL	National Drug Code	EXCLUDE
	CEFTAZIDIME NA/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFTAZIDIME P-HYD/ARGININE	National Drug Code	EXCLUDE
	CEFTAZIDIME P-HYD/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFTAZIDIME PENTAHYDRATE	National Drug Code	EXCLUDE
	CEFTIZOXIME NA/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFTIZOXIME SODIUM	National Drug Code	EXCLUDE
	CEFTRIAZONE NA/DEXTROSE,ISO	National Drug Code	EXCLUDE
	CEFTRIAZONE SOD/LIDOCAINE HCL	National Drug Code	EXCLUDE
	CEFTRIAZONE SODIUM	National Drug Code	EXCLUDE
J0696	INJ CEFTRIAZONE SODIUM PER 250 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0698	INJECTION CEFOTAXIME SODIUM PER G	Healthcare Common Procedure Coding System	EXCLUDE
J0713	INJECTION CEFTAZIDIME PER 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0715	INJ CEFTIZOXIME SODIUM PER 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0021	INJ CEFOPERAZONE SODIUM 1 GM	Healthcare Common Procedure Coding System	EXCLUDE
	CEFEPIME HCL	National Drug Code	EXCLUDE
	CEFEPIME HCL/D5W	National Drug Code	EXCLUDE
	CEFEPIME HCL/DEXTROSE, ISO-OSM	National Drug Code	EXCLUDE
	CEFTAROLINE FOSAMIL ACETATE	National Drug Code	EXCLUDE
J0692	INJ CEFEPIME HYDROCHLORID 500 MG	National Drug Code	EXCLUDE
J0712	INJECTION CEFTAROLINE FOSAMIL 10 MG	National Drug Code	EXCLUDE
	ALATROFLOXACIN MESYLATE	National Drug Code	EXCLUDE
	CINOXACIN	National Drug Code	EXCLUDE
	CIPROFLOXACIN	National Drug Code	EXCLUDE
	CIPROFLOXACIN HCL	National Drug Code	EXCLUDE
	CIPROFLOXACIN LACTATE	National Drug Code	EXCLUDE
	CIPROFLOXACIN LACTATE/D5W	National Drug Code	EXCLUDE
	CIPROFLOXACIN/CIPROFLOXA HCL	National Drug Code	EXCLUDE
	ENOXACIN	National Drug Code	EXCLUDE
	GATIFLOXACIN	National Drug Code	EXCLUDE
	GATIFLOXACIN/D5W	National Drug Code	EXCLUDE
	GEMIFLOXACIN MESYLATE	National Drug Code	EXCLUDE
	LEVOFLOXACIN	National Drug Code	EXCLUDE
	LEVOFLOXACIN/D5W	National Drug Code	EXCLUDE
	LOMEFLOXACIN HCL	National Drug Code	EXCLUDE
	MOXIFLOXACIN HCL	National Drug Code	EXCLUDE
	MOXIFLOXACIN IN NACL (ISO-OSM)	National Drug Code	EXCLUDE
	NALIDIXIC ACID	National Drug Code	EXCLUDE
	NORFLOXACIN	National Drug Code	EXCLUDE
	OFLOXACIN	National Drug Code	EXCLUDE
	OFLOXACIN/D5W	National Drug Code	EXCLUDE
	SPARFLOXACIN	National Drug Code	EXCLUDE
	TROVAFLOXACIN MESYLATE	National Drug Code	EXCLUDE
J0200	INJ ALATROFLOXACIN MESYLATE 100 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0744	INJ CIPROFLOXACIN IV INFUS 200 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1590	INJECTION GATIFLOXACIN 10 MG	Healthcare Common Procedure Coding System	EXCLUDE
J1956	INJECTION LEVOFLOXACIN 250 MG	Healthcare Common Procedure Coding System	EXCLUDE

Appendix C. Codes and Generic Names used to Define Inclusions/Exclusions in this Request

Code	Generic Name	CodeType	Include vs. Exclude
J2280	INJECTION MOXIFLOXACIN 100 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0024	INJ CIPROFLOXACIN 200 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0034	INJECTION OFLOXACIN 400 MG	Healthcare Common Procedure Coding System	EXCLUDE
S0085	INJECTION GATIFLOXACIN 200 MG	Healthcare Common Procedure Coding System	EXCLUDE
	AZITHROMYCIN	National Drug Code	EXCLUDE
	AZITHROMYCIN HYDROGEN CITRATE	National Drug Code	EXCLUDE
	CLARITHROMYCIN	National Drug Code	EXCLUDE
	ERYTHROMYCIN BASE	National Drug Code	EXCLUDE
	ERYTHROMYCIN ESTOLATE	National Drug Code	EXCLUDE
	ERYTHROMYCIN ETHYLSUCCINATE	National Drug Code	EXCLUDE
	ERYTHROMYCIN LACTOBIONATE	National Drug Code	EXCLUDE
	ERYTHROMYCIN STEARATE	National Drug Code	EXCLUDE
	TELITHROMYCIN	National Drug Code	EXCLUDE
	OMEPRAZOLE/CLARITHROMYCIN/AMOXICILLIN TRIHYDRATE	National Drug Code	EXCLUDE
	LANSOPRAZOLE/AMOXICILLIN TRIHYDRATE/CLARITHROMYCIN	National Drug Code	EXCLUDE
	ERYTHROMYCIN ETHYLSUCCINATE/SULFISOXAZOLE ACETYL	National Drug Code	EXCLUDE
J0456	INJECTION AZITHROMYCIN 500 MG	Healthcare Common Procedure Coding System	EXCLUDE
	ERY E-SUCC/SULFISOXAZOLE	National Drug Code	EXCLUDE
	SULFADIAZINE	National Drug Code	EXCLUDE
	SULFAMETHOXAZOLE	National Drug Code	EXCLUDE
	SULFAMETHOXAZOLE/TRIMETHOPRIM	National Drug Code	EXCLUDE
	SULFASALAZINE	National Drug Code	EXCLUDE
	SULFISOXAZOLE ACETYL	National Drug Code	EXCLUDE
	SULFISOXAZOLE/PHENAZOPY HCL	National Drug Code	EXCLUDE
	BISMUTH/METRONID/TETRACYCLINE	National Drug Code	EXCLUDE
	DEMECLOCYCLINE HCL	National Drug Code	EXCLUDE
	DOXYCYCLINE CALCIUM	National Drug Code	EXCLUDE
	DOXYCYCLINE HYCLATE	National Drug Code	EXCLUDE
	DOXYCYCLINE MONOHYDRATE	National Drug Code	EXCLUDE
	MINOCYCLINE HCL	National Drug Code	EXCLUDE
	OXYTETRACYCLINE HCL	National Drug Code	EXCLUDE
	OXYTETRACYCLINE/LIDOCAINE	National Drug Code	EXCLUDE
	TETRACYCLINE HCL	National Drug Code	EXCLUDE
J0120	INJECTION TETRACYCLINE UP TO 250 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2265	INJECTION MINOCYCLINE HCL 1 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2460	INJ OXYTETRACYCLINE HCL TO 50 MG	Healthcare Common Procedure Coding System	EXCLUDE
	BACITRACIN	National Drug Code	EXCLUDE
	BEDAQUILINE FUMARATE	National Drug Code	EXCLUDE
	CHLORAMPHENICOL SOD SUCC	National Drug Code	EXCLUDE
	CLOFAZIMINE	National Drug Code	EXCLUDE
	COLISTIN (AS COLISTIMETHATE SODIUM)	National Drug Code	EXCLUDE
	CYCLOSERINE	National Drug Code	EXCLUDE
	DAPSONE	National Drug Code	EXCLUDE
	DAPTOMYCIN	National Drug Code	EXCLUDE
	ETHAMBUTOL HCL	National Drug Code	EXCLUDE
	FOSFOMYCIN TROMETHAMINE	National Drug Code	EXCLUDE
	FURAZOLIDONE	National Drug Code	EXCLUDE
	ISONIAZID	National Drug Code	EXCLUDE

Appendix C. Codes and Generic Names used to Define Inclusions/Exclusions in this Request

Code	Generic Name	CodeType	Include vs. Exclude
	LINCOMYCIN HCL	National Drug Code	EXCLUDE
	LINEZOLID	National Drug Code	EXCLUDE
	NITROFURANTOIN	National Drug Code	EXCLUDE
	NITROFURANTOIN MACROCRYSTAL	National Drug Code	EXCLUDE
	NITROFURANTOIN MONOHYDRATE/MACROCRYSTALS	National Drug Code	EXCLUDE
	POLYMYXIN B SULFATE	National Drug Code	EXCLUDE
	PYRAZINAMIDE	National Drug Code	EXCLUDE
	RIFAMPIN	National Drug Code	EXCLUDE
	RIFAMPIN/ISONIAZID	National Drug Code	EXCLUDE
	RIFAMPIN/ISONIAZID/PYRAZINAMIDE	National Drug Code	EXCLUDE
	RIFAPENTINE	National Drug Code	EXCLUDE
	RIFAXIMIN	National Drug Code	EXCLUDE
	SPECTINOMYCIN HCL	National Drug Code	EXCLUDE
	TELAVANCIN HCL	National Drug Code	EXCLUDE
	TELITHROMYCIN	National Drug Code	EXCLUDE
	THALIDOMIDE	National Drug Code	EXCLUDE
	TIGECYCLINE	National Drug Code	EXCLUDE
C9001	LINEZOLID INJ PER 200MG	Healthcare Common Procedure Coding System	EXCLUDE
C9124	INJECTION DAPTOMYCIN PER 1 MG	Healthcare Common Procedure Coding System	EXCLUDE
C9228	INJECTION TIGECYCLINE PER 1MG	Healthcare Common Procedure Coding System	EXCLUDE
C9258	INJECTION TELAVANCIN 10 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0770	INJ COLISTIMETHATE SODIUM TO 150 MG	Healthcare Common Procedure Coding System	EXCLUDE
J0878	INJECTION DAPTOMYCIN 1 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2010	INJECTION LINCOMYCIN HCL TO 300 MG	Healthcare Common Procedure Coding System	EXCLUDE
J2020	INJECTION LINEZOLID 200 MG	Healthcare Common Procedure Coding System	EXCLUDE
J3095	INJECTION TELAVANCIN 10 MG	Healthcare Common Procedure Coding System	EXCLUDE
J3243	INJECTION TIGECYCLINE 1 MG	Healthcare Common Procedure Coding System	EXCLUDE
C9124	INJECTION DAPTOMYCIN PER 1 MG	HCPCS	EXCLUDE
C9228	INJECTION TIGECYCLINE PER 1MG	HCPCS	EXCLUDE
C9258	INJECTION TELAVANCIN 10 MG	HCPCS	EXCLUDE
J0770	INJ COLISTIMETHATE SODIUM TO 150 MG	HCPCS	EXCLUDE
J0878	INJECTION DAPTOMYCIN 1 MG	HCPCS	EXCLUDE
J2010	INJECTION LINCOMYCIN HCL TO 300 MG	HCPCS	EXCLUDE
J2020	INJECTION LINEZOLID 200 MG	HCPCS	EXCLUDE
J3095	INJECTION TELAVANCIN 10 MG	HCPCS	EXCLUDE
J3243	INJECTION TIGECYCLINE 1 MG	HCPCS	EXCLUDE

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
PROTON PUMP INHIBITORS		
	DEXLANSOPRAZOLE	National Drug Code
	ESOMEPRAZOLE MAGNESIUM	National Drug Code
	ESOMEPRAZOLE SODIUM	National Drug Code
	ESOMEPRAZOLE STRONTIUM	National Drug Code
	LANSOPRAZOLE	National Drug Code
	LANSOPRAZOLE/AMOXICILIN/CLARITH	National Drug Code
	LANSOPRAZOLE/NAPROXEN	National Drug Code
	NAPROXEN/ESOMEPRAZOLE MAG	National Drug Code
	OMEPRAZOLE	National Drug Code
	OMEPRAZOLE MAGNESIUM	National Drug Code
	OMEPRAZOLE/CLARITH/AMOXICILLIN	National Drug Code
	OMEPRAZOLE/SODIUM BICARBONATE	National Drug Code
	PANTOPRAZOLE SODIUM	National Drug Code
	RABEPRAZOLE SODIUM	National Drug Code
H2 Antagonists		
	CIMETIDINE	National Drug Code
	CIMETIDINE HCL	National Drug Code
	FAMOTIDINE	National Drug Code
	FAMOTIDINE/CA CARB/MAG HYDROX	National Drug Code
	IBUPROFEN/FAMOTIDINE	National Drug Code
	NIZATIDINE	National Drug Code
	RANITIDINE HCL	National Drug Code
	RANITIDINE HCL/DIET.SUPP NO.17	National Drug Code
	RANITIDINE HCL/DIET.SUPP NO.8	National Drug Code
AMINOGLYCOSIDES		
	AMIKACIN SULFATE	National Drug Code
	AMIKACIN SULFATE/PF	National Drug Code
	CAPREOMYCIN SULFATE	National Drug Code
	GENTAMICIN IN NACL, ISO-OSM	National Drug Code
	GENTAMICIN SULFATE	National Drug Code
	GENTAMICIN SULFATE/PF	National Drug Code
	GENTAMICIN/SODIUM CHLORIDE	National Drug Code
	KANAMYCIN SULFATE	National Drug Code
	NEOMYCIN SULFATE	National Drug Code
	NETILMICIN SULFATE	National Drug Code
	PAROMOMYCIN SULFATE	National Drug Code
	STREPTOMYCIN SULFATE	National Drug Code
	TOBRAMYCIN	National Drug Code
	TOBRAMYCIN IN 0.225% NACL	National Drug Code
	TOBRAMYCIN SULFATE	National Drug Code
	TOBRAMYCIN/SODIUM CHLORIDE	National Drug Code
J0278	INJECTION AMIKACIN SULFATE 100 MG	Healthcare Common Procedure Coding System
J1580	INJ GARAMYCIN GENTAMICIN UP 80 MG	Healthcare Common Procedure Coding System
J1840	INJ KANAMYCIN SULFATE TO 500 MG	Healthcare Common Procedure Coding System
J1850	INJ KANAMYCIN SULFATE TO 75 MG	Healthcare Common Procedure Coding System
J3000	INJECTION STREPTOMYCIN UP TO 1 G	Healthcare Common Procedure Coding System
J3260	INJ TOBRAMYCIN SULFATE TO 80 MG	Healthcare Common Procedure Coding System
J7682	TOBRAMYCIN INHAL NON-CP UNIT 300 MG	Healthcare Common Procedure Coding System
J7685	TOBRAMYCIN INHAL CP THRU DME 300 MG	Healthcare Common Procedure Coding System
S0016	INJECTION AMIKACIN SULFATE 500 MG	Healthcare Common Procedure Coding System

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
S0072	INJECTION AMIKACIN SULFATE 100 MG	Healthcare Common Procedure Coding System
IV Penicillin		
	AMPICILLIN SODIUM	National Drug Code
	AMPICILLIN SODIUM/SULBACTAM NA	National Drug Code
	NAFCILLIN IN DEXTROSE,ISO-OSM	National Drug Code
	NAFCILLIN SODIUM	National Drug Code
	OXACILLIN SODIUM	National Drug Code
	OXACILLIN SODIUM/DEXTROSE,ISO	National Drug Code
	PENICILLIN G BENZATHINE	National Drug Code
	PENICILLIN G POT IN 0.9% NACL	National Drug Code
	PENICILLIN G POTASSIUM	National Drug Code
	PENICILLIN G PROCAINE	National Drug Code
	PENICILLIN G SODIUM	National Drug Code
	PIPERACILLIN SODIUM	National Drug Code
	PIPERACILLIN SODIUM/TAZOBACTAM	National Drug Code
	PIPERACILLIN-TAZO-DEXTROSE,ISO	National Drug Code
	TICARCILLIN DISODIUM	National Drug Code
	TICARCILLIN/K CLAVULANATE	National Drug Code
J0290	INJECTION AMPICILLIN SODIUM 500 MG	Healthcare Common Procedure Coding System
J2700	INJ OXACILLIN SODIUM TO 250 MG	Healthcare Common Procedure Coding System
J2970	INJ METHICILLIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System
S0032	INJECTION NAFCILLIN SODIUM 2 GRAMS	Healthcare Common Procedure Coding System
S0081	INJ PIPERACILLIN SODIUM 500 MG	Healthcare Common Procedure Coding System
Beta Lactam Inhibitors		
	AZTREONAM	National Drug Code
	AZTREONAM LYSINE	National Drug Code
	AZTREONAM/DEXTROSE-WATER	National Drug Code
	DORIPENEM	National Drug Code
	ERTAPENEM SODIUM	National Drug Code
	IMIPENEM/CILASTATIN SODIUM	National Drug Code
	MEROPENEM	National Drug Code
C9116	INJ ERTAPENEM SODIUM-1 GM VIAL	Healthcare Common Procedure Coding System
C9241	INJECTION DORIPENEM 10 MG	Healthcare Common Procedure Coding System
J1267	INJECTION DORIPENEM 10 MG	Healthcare Common Procedure Coding System
J1335	INJECTION ERTAPENEM SODIUM 500 MG	Healthcare Common Procedure Coding System
J2185	INJECTION MEROPENEM 100 MG	Healthcare Common Procedure Coding System
S0073	INJECTION AZTREONAM 500 MG	Healthcare Common Procedure Coding System
S0143	AZTREONAM INHAL SOL CONC FORM-GM	Healthcare Common Procedure Coding System
Celaphosporins First Generation		
	CEFADROXIL	National Drug Code
	CEFAZOLIN SODIUM	National Drug Code
	CEFAZOLIN SODIUM IN 0.9 % NACL	National Drug Code
	CEFAZOLIN SODIUM/D5W	National Drug Code
	CEFAZOLIN SODIUM/DEXTROSE,ISO	National Drug Code
	CEFAZOLIN SODIUM/WATER	National Drug Code
	CEPHELEXIN	National Drug Code
	CEPHELEXIN HCL	National Drug Code
	CEPHALOTHIN SODIUM/D5W	National Drug Code
	CEPHRADINE	National Drug Code
J0690	INJECTION CEFAZOLIN SODIUM 500 MG	Healthcare Common Procedure Coding System
J0710	INJ CEPHAPIRIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System
J1890	INJ CEPHALOTHIN SODIUM TO 1 GM	Healthcare Common Procedure Coding System
Celaphosporins Second Generation		

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
	CEFACTOR	National Drug Code
	CEFAMANDOLE IN DEXTROSE 5 %	National Drug Code
	CEFAMANDOLE NAFATE	National Drug Code
	CEFONICID SODIUM	National Drug Code
	CEFOTETAN DISOD/DEXTROSE,ISO	National Drug Code
	CEFOTETAN DISODIUM	National Drug Code
	CEFOTETAN IN DEXTROSE	National Drug Code
	CEFOXITIN SODIUM	National Drug Code
	CEFOXITIN SODIUM/D5W	National Drug Code
	CEFOXITIN SODIUM/DEXTROSE,ISO	National Drug Code
	CEFPROZIL	National Drug Code
	CEFUROXIME AXETIL	National Drug Code
	CEFUROXIME SODIUM	National Drug Code
	CEFUROXIME SODIUM/DEXTROSE,ISO	National Drug Code
	CEFUROXIME SODIUM/WATER	National Drug Code
	LORACARBEF	National Drug Code
J0694	INJ CEFOXITIN SODIUM 1 GM	Healthcare Common Procedure Coding System
J0697	INJ STERL CEFUROXIME SODIUM 750 MG	Healthcare Common Procedure Coding System
S0074	INJECTION CEFOTETAN DISODIUM 500 MG	Healthcare Common Procedure Coding System
Celaphosporins Third Generation		
	CEFDINIR	National Drug Code
	CEFDITOREN PIVOXIL	National Drug Code
	CEFIXIME	National Drug Code
	CEFOPERAZONE SODIUM	National Drug Code
	CEFOTAXIME SODIUM	National Drug Code
	CEFOTAXIME SODIUM/D5W	National Drug Code
	CEFPODOXIME PROXETIL	National Drug Code
	CEFTAZIDIME NA/DEXTROSE,ISO	National Drug Code
	CEFTAZIDIME P-HYD/ARGININE	National Drug Code
	CEFTAZIDIME P-HYD/DEXTROSE,ISO	National Drug Code
	CEFTAZIDIME PENTAHYDRATE	National Drug Code
	CEFTAZIDIME PENTAHYDRATE/D5W	National Drug Code
	CEFTAZIDIME SODIUM	National Drug Code
	CEFTIBUTEN DIHYDRATE	National Drug Code
	CEFTIZOXIME NA/DEXTROSE,ISO	National Drug Code
	CEFTIZOXIME SODIUM	National Drug Code
	CEFTRIAZONE NA/DEXTROSE,ISO	National Drug Code
	CEFTRIAZONE SOD/LIDOCAINE HCL	National Drug Code
	CEFTRIAZONE SODIUM	National Drug Code
J0696	INJ CEFTRIAZONE SODIUM PER 250 MG	Healthcare Common Procedure Coding System
J0698	INJECTION CEFOTAXIME SODIUM PER G	Healthcare Common Procedure Coding System
J0713	INJECTION CEFTAZIDIME PER 500 MG	Healthcare Common Procedure Coding System
J0715	INJ CEFTIZOXIME SODIUM PER 500 MG	Healthcare Common Procedure Coding System
S0021	INJ CEFOPERAZONE SODIUM 1 GM	Healthcare Common Procedure Coding System
Celaphosporins Fourth and Fifth Generation		
	CEFEPIME HCL	National Drug Code
	CEFEPIME HCL/D5W	National Drug Code
	CEFEPIME HCL/DEXTROSE, ISO-OSM	National Drug Code
	CEFTAROLINE FOSAMIL ACETATE	National Drug Code
J0692	INJ CEFEPIME HYDROCHLORID 500 MG	Healthcare Common Procedure Coding System
J0712	INJECTION CEFTAROLINE FOSAMIL 10 MG	Healthcare Common Procedure Coding System
Fluoroquinolones		
	ALATROFLOXACIN MESYLATE	National Drug Code

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
	CINOXACIN	National Drug Code
	CIPROFLOXACIN	National Drug Code
	CIPROFLOXACIN HCL	National Drug Code
	CIPROFLOXACIN LACTATE	National Drug Code
	CIPROFLOXACIN LACTATE/D5W	National Drug Code
	CIPROFLOXACIN/CIPROFLOXA HCL	National Drug Code
	ENOXACIN	National Drug Code
	GATIFLOXACIN	National Drug Code
	GATIFLOXACIN/D5W	National Drug Code
	GEMIFLOXACIN MESYLATE	National Drug Code
	LEVOFLOXACIN	National Drug Code
	LOMEFLOXACIN HCL	National Drug Code
	MOXIFLOXACIN HCL	National Drug Code
	MOXIFLOXACIN IN NACL (ISO-OSM)	National Drug Code
	NALIDIXIC ACID	National Drug Code
	NORFLOXACIN	National Drug Code
	OFLOXACIN	National Drug Code
	OFLOXACIN/D5W	National Drug Code
	SPARFLOXACIN	National Drug Code
	TROVAFLOXACIN MESYLATE	National Drug Code
J0200	INJ ALATROFLOXACIN MESYLATE 100 MG	Healthcare Common Procedure Coding System
J0744	INJ CIPROFLOXACIN IV INFUS 200 MG	Healthcare Common Procedure Coding System
J1590	INJECTION GATIFLOXACIN 10 MG	Healthcare Common Procedure Coding System
J1956	INJECTION LEVOFLOXACIN 250 MG	Healthcare Common Procedure Coding System
J2280	INJECTION MOXIFLOXACIN 100 MG	Healthcare Common Procedure Coding System
S0024	INJ CIPROFLOXACIN 200 MG	Healthcare Common Procedure Coding System
S0034	INJECTION OFLOXACIN 400 MG	Healthcare Common Procedure Coding System
S0085	INJECTION GATIFLOXACIN 200 MG	Healthcare Common Procedure Coding System
Macrolides		
	AZITHROMYCIN	National Drug Code
	AZITHROMYCIN HYDROGEN CITRATE	National Drug Code
	CLARITHROMYCIN	National Drug Code
	ERYTHROMYCIN BASE	National Drug Code
	ERYTHROMYCIN ESTOLATE	National Drug Code
	ERYTHROMYCIN ETHYLSUCCINATE	National Drug Code
	ERYTHROMYCIN LACTOBIONATE	National Drug Code
	ERYTHROMYCIN STEARATE	National Drug Code
	TELITHROMYCIN	National Drug Code
	OMEPRAZOLE/CLARITHROMYCIN/AMOXICILLIN TRIHYDRATE	National Drug Code
	LANSOPRAZOLE/AMOXICILLIN TRIHYDRATE/CLARITHROMYCIN	National Drug Code
	ERYTHROMYCIN ETHYLSUCCINATE/SULFISOXAZOLE ACETYL	National Drug Code
J0456	INJECTION AZITHROMYCIN 500 MG	Healthcare Common Procedure Coding System
Sulfonamides		
	ERY E-SUCC/SULFISOXAZOLE	National Drug Code
	SULFADIAZINE	National Drug Code
	SULFAMETHOXAZOLE	National Drug Code
	SULFAMETHOXAZOLE/TRIMETHOPRIM	National Drug Code
	SULFASALAZINE	National Drug Code
	SULFISOXAZOLE	National Drug Code
	SULFISOXAZOLE ACETYL	National Drug Code
	SULFISOXAZOLE/PHENAZOPY HCL	National Drug Code
Tetracyclines		
	BISMUTH/METRONID/TETRACYCLINE	National Drug Code

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
	DEMECLOCYCLINE HCL	National Drug Code
	DOXYCYCLINE CALCIUM	National Drug Code
	DOXYCYCLINE HYCLATE	National Drug Code
	DOXYCYCLINE MONOHY/SKIN CLNSR9	National Drug Code
	DOXYCYCLINE MONOHYDRATE	National Drug Code
	DOXYCYCLINE/OMEGA-3 #1/EYE MSK	National Drug Code
	MINOCYCLINE HCL	National Drug Code
	OXYTETRACYCLINE HCL	National Drug Code
	OXYTETRACYCLINE/LIDOCAINE	National Drug Code
	TETRACYCLINE HCL	National Drug Code
J0120	INJECTION TETRACYCLINE UP TO 250 MG	Healthcare Common Procedure Coding System
J2265	INJECTION MINOCYCLINE HCL 1 MG	Healthcare Common Procedure Coding System
J2460	INJ OXYTETRACYCLINE HCL TO 50 MG	Healthcare Common Procedure Coding System
Other Antimicrobials		
	BACITRACIN	National Drug Code
	BEDAQUILINE FUMARATE	National Drug Code
	CHLORAMPHENICOL SOD SUCC	National Drug Code
	CLOFAZIMINE	National Drug Code
	COLISTIN (AS COLISTIMETHATE SODIUM)	National Drug Code
	CYCLOSERINE	National Drug Code
	DAPSONE	National Drug Code
	DAPTOMYCIN	National Drug Code
	ETHAMBUTOL HCL	National Drug Code
	FOSFOMYCIN TROMETHAMINE	National Drug Code
	FURAZOLIDONE	National Drug Code
	ISONIAZID	National Drug Code
	LINCOMYCIN HCL	National Drug Code
	LINEZOLID	National Drug Code
	NITROFURANTOIN	National Drug Code
	NITROFURANTOIN MACROCRYSTAL	National Drug Code
	NITROFURANTOIN MONOHYDRATE/MACROCRYSTALS	National Drug Code
	POLYMYXIN B SULFATE	National Drug Code
	PYRAZINAMIDE	National Drug Code
	RIFAMPIN	National Drug Code
	RIFAMPIN/ISONIAZID	National Drug Code
	RIFAMPIN/ISONIAZID/PYRAZINAMIDE	National Drug Code
	RIFAPENTINE	National Drug Code
	RIFAXIMIN	National Drug Code
	SPECTINOMYCIN HCL	National Drug Code
	TELAVANCIN HCL	National Drug Code
	TELITHROMYCIN	National Drug Code
	THALIDOMIDE	National Drug Code
	TIGECYCLINE	National Drug Code
C9001	LINEZOLID INJ PER 200MG	Healthcare Common Procedure Coding System
C9124	INJECTION DAPTOMYCIN PER 1 MG	Healthcare Common Procedure Coding System
C9228	INJECTION TIGECYCLINE PER 1MG	Healthcare Common Procedure Coding System
C9258	INJECTION TELAVANCIN 10 MG	Healthcare Common Procedure Coding System
J0770	INJ COLISTIMETHATE SODIUM TO 150 MG	Healthcare Common Procedure Coding System
J0878	INJECTION DAPTOMYCIN 1 MG	Healthcare Common Procedure Coding System
J2010	INJECTION LINCOMYCIN HCL TO 300 MG	Healthcare Common Procedure Coding System
J2020	INJECTION LINEZOLID 200 MG	Healthcare Common Procedure Coding System
J3095	INJECTION TELAVANCIN 10 MG	Healthcare Common Procedure Coding System
J3243	INJECTION TIGECYCLINE 1 MG	Healthcare Common Procedure Coding System

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
Injectable Clindamycin		
	CLINDAMYCIN PHOSPHATE	National Drug Code
	CLINDAMYCIN PHOSPHATE/D5W	National Drug Code
Chemotherapy Administration		
V58.1	ENCOUNTR ANTINEO CHEMO/IMMUNO TX	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V66.2	CONVALESCENCE FOLLOWING CHEMOTHAPY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V67.2	CHEMOTHERAPY FOLLOW-UP EXAMINATION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
99.25	Injection or infusion of cancer chemotherapeutic substance	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
96400	CHEMOTX ADMIN SUBQ/IM W/WO LOCAL	Current Procedural Terminology
96401	CHEMO ANTI-NEOPL SQ/IM	Current Procedural Terminology
96402	CHEMO HORMON ANTINEOPL SQ/IM	Current Procedural Terminology
96405	CHEMO INTRALESIONAL UP TO 7	Current Procedural Terminology
96406	CHEMO INTRALESIONAL OVER 7	Current Procedural Terminology
96408	CHEMOTHAPY ADMIN IV; PUSH TECHNIQUE	Current Procedural Terminology
96409	CHEMO IV PUSH SNGL DRUG	Current Procedural Terminology
96410	CHEMOTX ADMIN IV; INFUSION UP-1 HR	Current Procedural Terminology
96411	CHEMO IV PUSH ADDL DRUG	Current Procedural Terminology
96412	CHEMOTX IV; INFUS 1-8 HR EA ADD HR	Current Procedural Terminology
96413	CHEMO IV INFUSION 1 HR	Current Procedural Terminology
96414	CHEMOTX IV; PROLONGED INFUS W/PUMP	Current Procedural Terminology
96415	CHEMO IV INFUSION ADDL HR	Current Procedural Terminology
96416	CHEMO PROLONG INFUSE W/PUMP	Current Procedural Terminology
96417	CHEMO IV INFUS EACH ADDL SEQ	Current Procedural Terminology
96420	CHEMO IA PUSH TECNIQUE	Current Procedural Terminology
96422	CHEMO IA INFUSION UP TO 1 HR	Current Procedural Terminology
96423	CHEMO IA INFUSE EACH ADDL HR	Current Procedural Terminology
96425	CHEMOTHERAPY INFUSION METHOD	Current Procedural Terminology
96440	CHEMOTHERAPY INTRACAVITARY	Current Procedural Terminology
96445	CHEMOTHERAPY INTRACAVITARY	Current Procedural Terminology
96446	CHEMOTX ADMN PRTL CAVITY	Current Procedural Terminology
96450	CHEMOTHERAPY INTO CNS	Current Procedural Terminology
96520	REFILLING&MAINTENANCE PORTABLE PUMP	Current Procedural Terminology
96521	REFILL/MAINT PORTABLE PUMP	Current Procedural Terminology
96522	REFILL/MAINT PUMP/RESVR SYST	Current Procedural Terminology
96523	IRRIG DRUG DELIVERY DEVICE	Current Procedural Terminology
96530	REFIL&MNT IMPL PUMP/RESRVOR RX DEL	Current Procedural Terminology
96542	CHEMOTHERAPY INJECTION	Current Procedural Terminology
96545	PROVISION OF CHEMOTHERAPY AGENT	Current Procedural Terminology
96549	CHEMOTHERAPY UNSPECIFIED	Current Procedural Terminology
Q0083	CHEMO ADMIN NOT INFUS TECH ONLY VST	Healthcare Common Procedure Coding System
Q0084	CHEMO ADMIN INFUS TECH ONLY VISIT	Healthcare Common Procedure Coding System
Q0085	CHEMO ADMIN INFUS&OTH TECH VISIT	Healthcare Common Procedure Coding System
J9000	INJECTION DOXORUBICIN HCL 10 MG	Healthcare Common Procedure Coding System
J9001	INJ DOXORUBICIN HCL LIPID 10 MG	Healthcare Common Procedure Coding System
J9002	INJ DOXORUBICIN HCL LIP DOXIL 10 MG	Healthcare Common Procedure Coding System
J9010	INJECTION ALEMTUZUMAB 10 MG	Healthcare Common Procedure Coding System
J9015	INJ ALDESLEUKIN PER SINGLE USE VIAL	Healthcare Common Procedure Coding System
J9017	INJECTION ARSENIC TRIOXIDE 1 MG	Healthcare Common Procedure Coding System
J9019	INJ ASPARAGINASE ERWINAZE 1000 IU	Healthcare Common Procedure Coding System
J9020	INJECTION ASPARAGINASE 10000 UNITS	Healthcare Common Procedure Coding System
J9025	INJECTION AZACITIDINE 1 MG	Healthcare Common Procedure Coding System
J9027	INJECTION CLOFARABINE 1 MG	Healthcare Common Procedure Coding System
J9031	BCG PER INSTILLATION	Healthcare Common Procedure Coding System

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
J9033	INJECTION BENDAMUSTINE HCL 1 MG	Healthcare Common Procedure Coding System
J9035	INJECTION BEVACIZUMAB 10 MG	Healthcare Common Procedure Coding System
J9040	INJECTION BLEOMYCIN SULFATE 15 UNIT	Healthcare Common Procedure Coding System
J9041	INJECTION BORTEZOMIB 0.1 MG	Healthcare Common Procedure Coding System
J9042	INJECTION BRENTUXIMAB VEDOTIN 1 MG	Healthcare Common Procedure Coding System
J9043	INJECTION CABAZITAXEL 1 MG	Healthcare Common Procedure Coding System
J9045	INJECTION CARBOPLATIN 50 MG	Healthcare Common Procedure Coding System
J9047	INJECTION CARFILZOMIB 1 MG	Healthcare Common Procedure Coding System
J9050	INJECTION CARMUSTINE 100 MG	Healthcare Common Procedure Coding System
J9055	INJECTION CETUXIMAB 10 MG	Healthcare Common Procedure Coding System
J9060	INJ CISPLATIN POWDER/SOLUTION 10 MG	Healthcare Common Procedure Coding System
J9062	CISPLATIN 50 MG	Healthcare Common Procedure Coding System
J9065	INJECTION CLADRIBINE PER 1 MG	Healthcare Common Procedure Coding System
J9070	CYCLOPHOSPHAMIDE 100 MG	Healthcare Common Procedure Coding System
J9080	CYCLOPHOSPHAMIDE 200 MG	Healthcare Common Procedure Coding System
J9090	CYCLOPHOSPHAMIDE 500 MG	Healthcare Common Procedure Coding System
J9091	CYCLOPHOSPHAMIDE 1 G	Healthcare Common Procedure Coding System
J9092	CYCLOPHOSPHAMIDE 2 G	Healthcare Common Procedure Coding System
J9093	CYCLOPHOSPHAMIDE LYOPHILIZED 100 MG	Healthcare Common Procedure Coding System
J9094	CYCLOPHOSPHAMIDE LYOPHILIZED 200 MG	Healthcare Common Procedure Coding System
J9095	CYCLOPHOSPHAMIDE LYOPHILIZED 500 MG	Healthcare Common Procedure Coding System
J9096	CYCLOPHOSPHAMIDE LYOPHILIZED 1 G	Healthcare Common Procedure Coding System
J9097	CYCLOPHOSPHAMIDE LYOPHILIZED 2 G	Healthcare Common Procedure Coding System
J9098	INJECTION CYTARABINE LIPOSOME 10 MG	Healthcare Common Procedure Coding System
J9100	INJECTION CYTARABINE 100 MG	Healthcare Common Procedure Coding System
J9110	INJECTION CYTARABINE 500 MG	Healthcare Common Procedure Coding System
J9120	INJECTION DACTINOMYCIN 0.5 MG	Healthcare Common Procedure Coding System
J9130	DACARBAZINE 100 MG	Healthcare Common Procedure Coding System
J9140	DACARBAZINE 200 MG	Healthcare Common Procedure Coding System
J9150	INJECTION DAUNORUBICIN 10 MG	Healthcare Common Procedure Coding System
J9151	INJ DAUNORUBICIN CITRATE LIP 10 MG	Healthcare Common Procedure Coding System
J9155	INJECTION DEGARELIX 1 MG	Healthcare Common Procedure Coding System
J9160	INJ DENILEUKIN DIFTITOX 300 MCG	Healthcare Common Procedure Coding System
J9165	INJ DIETHYLSTILBESTROL 250 MG	Healthcare Common Procedure Coding System
J9170	INJECTION DOCETAXEL 20 MG	Healthcare Common Procedure Coding System
J9171	INJECTION DOCETAXEL 1 MG	Healthcare Common Procedure Coding System
J9175	INJECTION ELLIOTT'S' B SOLUTION 1 ML	Healthcare Common Procedure Coding System
J9178	INJECTION EPIRUBICIN HCL 2 MG	Healthcare Common Procedure Coding System
J9179	INJECTION ERIBULIN MESYLATE 0.1 MG	Healthcare Common Procedure Coding System
J9180	EPIRUBICIN HYDROCHLORIDE 50 MG	Healthcare Common Procedure Coding System
J9181	INJECTION ETOPOSIDE 10 MG	Healthcare Common Procedure Coding System
J9182	ETOPOSIDE 100 MG	Healthcare Common Procedure Coding System
J9185	INJ FLUDARABINE PHOSPHATE 50 MG	Healthcare Common Procedure Coding System
J9190	INJECTION FLUOROURACIL 500 MG	Healthcare Common Procedure Coding System
J9200	INJECTION FLOXURIDINE 500 MG	Healthcare Common Procedure Coding System
J9201	INJECTION FLOXURIDINE 500 MG	Healthcare Common Procedure Coding System
J9201	INJECTION FLOXURIDINE 500 MG	Healthcare Common Procedure Coding System
J9201	INJECTION FLOXURIDINE 500 MG	Healthcare Common Procedure Coding System
J9201	INJECTION FLOXURIDINE 500 MG	Healthcare Common Procedure Coding System
J9202	GOSERELIN ACETATE IMPLANT 3.6 MG	Healthcare Common Procedure Coding System
J9206	INJECTION IRINOTECAN 20 MG	Healthcare Common Procedure Coding System
J9207	INJECTION IXABEPILONE 1 MG	Healthcare Common Procedure Coding System
J9208	INJECTION IFOSFAMIDE 1 G	Healthcare Common Procedure Coding System
J9209	INJECTION MESNA 200 MG	Healthcare Common Procedure Coding System
J9211	INJECTION IDARUBICIN HCL 5 MG	Healthcare Common Procedure Coding System
J9212	INJ INTRFERN ALFACON-1 RECOMB 1 MCG	Healthcare Common Procedure Coding System

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
J9213	INJ INTERFERON ALFA-2A RECOM 3 M U	Healthcare Common Procedure Coding System
J9214	INJ INTERFERON ALFA-2B RECOMB 1 M U	Healthcare Common Procedure Coding System
J9215	INJ INTERFERON ALFA-N3 250000 IU	Healthcare Common Procedure Coding System
J9216	INJ INTERFERON GAMMA-1B 3 MILLION U	Healthcare Common Procedure Coding System
J9217	LEUPROLIDE ACETATE 7.5 MG	Healthcare Common Procedure Coding System
J9218	LEUPROLIDE ACETATE PER 1 MG	Healthcare Common Procedure Coding System
J9219	LEUPROLIDE ACETATE IMPLANT 65 MG	Healthcare Common Procedure Coding System
J9225	HISTRELIN IMPLANT VANTAS 50 MG	Healthcare Common Procedure Coding System
J9226	HISTRELIN IMPL SUPPRELIN LA 50 MG	Healthcare Common Procedure Coding System
J9228	INJECTION IPILIMUMAB 1 MG	Healthcare Common Procedure Coding System
J9230	INJECTION MECHLORETHAMINE HCL 10 MG	Healthcare Common Procedure Coding System
J9245	INJECTION MELPHALAN HCL 50 MG	Healthcare Common Procedure Coding System
J9250	METHOTREXATE SODIUM 5 MG	Healthcare Common Procedure Coding System
J9260	METHOTREXATE SODIUM 50 MG	Healthcare Common Procedure Coding System
J9261	INJECTION NELARABINE 50 MG	Healthcare Common Procedure Coding System
J9262	INJ OMACETAXINE MEPESUCCINAT .01 MG	Healthcare Common Procedure Coding System
J9263	INJECTION OXALIPLATIN 0.5 MG	Healthcare Common Procedure Coding System
J9264	INJ PACLITAXEL PROTBND PARTICL 1 MG	Healthcare Common Procedure Coding System
J9265	INJECTION PACLITAXEL 30 MG	Healthcare Common Procedure Coding System
J9266	INJ PEGASPARGASE SINGLE DOSE VIAL	Healthcare Common Procedure Coding System
J9268	INJECTION PENTOSTATIN 10 MG	Healthcare Common Procedure Coding System
J9270	INJECTION PLICAMYCIN 2.5 MG	Healthcare Common Procedure Coding System
J9280	INJECTION MITOMYCIN 5 MG	Healthcare Common Procedure Coding System
J9290	MITOMYCIN 20 MG	Healthcare Common Procedure Coding System
J9291	MITOMYCIN 40 MG	Healthcare Common Procedure Coding System
J9293	INJECTION MITOXANTRONE HCL PER 5 MG	Healthcare Common Procedure Coding System
J9300	INJ GEMTUZUMAB OZOGAMICIN 5 MG	Healthcare Common Procedure Coding System
J9302	INJECTION OFATUMUMAB 10 MG	Healthcare Common Procedure Coding System
J9303	INJECTION PANITUMUMAB 10 MG	Healthcare Common Procedure Coding System
J9305	INJECTION PEMETREXED 10 MG	Healthcare Common Procedure Coding System
J9306	INJECTION PERTUZUMAB 1 MG	Healthcare Common Procedure Coding System
J9307	INJECTION PRALATREXATE 1 MG	Healthcare Common Procedure Coding System
J9310	INJECTION RITUXIMAB 100 MG	Healthcare Common Procedure Coding System
J9315	INJECTION ROMIDEPSIN 1 MG	Healthcare Common Procedure Coding System
J9320	INJECTION STREPTOZOCIN 1 G	Healthcare Common Procedure Coding System
J9328	INJECTION TEMOZOLOMIDE 1 MG	Healthcare Common Procedure Coding System
J9330	INJECTION TEMSIROLIMUS 1 MG	Healthcare Common Procedure Coding System
J9340	INJECTION THIOTEPA 15 MG	Healthcare Common Procedure Coding System
J9350	INJECTION TOPOTECAN 4 MG	Healthcare Common Procedure Coding System
J9351	INJECTION TOPOTECAN 0.1 MG	Healthcare Common Procedure Coding System
J9354	INJ ADO-TRASTUZUMAB EMTANSINE 1 MG	Healthcare Common Procedure Coding System
J9355	INJECTION TRASTUZUMAB 10 MG	Healthcare Common Procedure Coding System
J9357	INJ VALRUBICIN INTRAVESICAL 200 MG	Healthcare Common Procedure Coding System
J9360	INJECTION VINBLASTINE SULFATE 1 MG	Healthcare Common Procedure Coding System
J9370	VINCRISTINE SULFATE 1 MG	Healthcare Common Procedure Coding System
J9371	INJ VINCRISTINE SULF LIPOSOME 1 MG	Healthcare Common Procedure Coding System
J9375	VINCRISTINE SULFATE 2 MG	Healthcare Common Procedure Coding System
J9380	VINCRISTINE SULFATE 5 MG	Healthcare Common Procedure Coding System
J9390	INJ VINOARELBINE TARTRATE 10 MG	Healthcare Common Procedure Coding System
J9395	INJECTION FULVESTRANT 25 MG	Healthcare Common Procedure Coding System
J9400	INJECTION ZIV-AFLIBERCEPT 1 MG	Healthcare Common Procedure Coding System
J9600	INJECTION PORFIMER SODIUM 75 MG	Healthcare Common Procedure Coding System
J9999	NOT OTHERWISE CLASS ANTINEOPLSTC DRUG	Healthcare Common Procedure Coding System

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
Diabetes		
250.0*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.1*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.2*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.3*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.4*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.5*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.6*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.7*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.8*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
250.9*	Diabetes	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
Dialysis		
79.25	CLOUDY DIALYSIS AFFLUENT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V56.2	FIT&ADJ PERITON DIALYSIS CATHETER	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
39.95	HEMODIALYSIS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
54.98	PERITONEAL DIALYSIS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
90935	HEMODIALYSIS ONE EVALUATION	Current Procedural Terminology
90937	HEMODIALYSIS REPEATED EVAL	Current Procedural Terminology
90945	DIALYSIS ONE EVALUATION	Current Procedural Terminology
90947	DIALYSIS REPEATED EVAL	Current Procedural Terminology
99512	HOME VISIT FOR HEMODIALYSIS	Current Procedural Terminology
99601	HOME INFUSION/VISIT 2 HRS	Current Procedural Terminology
99602	HOME INFUSION EACH ADDTL HR	Current Procedural Terminology
Immunocompromised State		
	ABATACEPT	National Drug Code
	ABATACEPT/MALTOSE	National Drug Code
	ADALIMUMAB	National Drug Code
	ANAKINRA	National Drug Code
	AZATHIOPRINE	National Drug Code
	AZATHIOPRINE SODIUM	National Drug Code
	CERTOLIZUMAB PEGOL	National Drug Code
	CHLOROQUINE HCL	National Drug Code
	CHLOROQUINE PHOSPHATE	National Drug Code
	ETANERCEPT	National Drug Code
	GOLIMUMAB	National Drug Code
	HYDROXYCHLOROQUINE SULFATE	National Drug Code
	INFLIXIMAB	National Drug Code
	LEFLUNOMIDE	National Drug Code
	METHOTREXATE	National Drug Code
	METHOTREXATE SODIUM	National Drug Code
	METHOTREXATE SODIUM/PF	National Drug Code
	METHOTREXATE/PF	National Drug Code
	SIROLIMUS	National Drug Code
	SULFASALAZINE	National Drug Code
	TACROLIMUS	National Drug Code
	TACROLIMUS ANHYDROUS	National Drug Code
	TACROLIMUS, MICRONIZED	National Drug Code
	TEMSIROLIMUS	National Drug Code
00.18	INFUS IMMUNOSUPPRESSIVE ANTIBODY TX	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
33.5	LUNG TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
33.50	LUNG TRANSPLANTATION NOS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
33.51	UNILATERAL LUNG TRANSPLANTATION	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
33.52	BILATERAL LUNG TRANSPLANTATION	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
33.6	COMBINED HEART-LUNG TRANSPLANTATION	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
37.5	HEART REPLACEMENT PROCEDURES	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
37.51	HEART TRANSPLANTATION	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.0	BONE MARROW TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.00	BONE MARROW TRANSPLANT NOS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.01	AUTOL BN MARROW TPLNT W/O PURGING	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.02	ALLOGENEIC MARROW TRANSPL-PURGE	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.03	ALLOGENEIC BONE MARROW TRANSPL	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.04	AUTO HEMAT ST CELL TRNSPLT W/O PURG	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.05	ALLO HEMAT ST CELL TRNSPLT W/O PURG	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.06	CORD BLOOD STEM CELL TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.07	AUTO HEMAT ST CELL TRNSPLT W PURG	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.08	ALLO HEMAT STEM CELL TRNSPLT W/PURG	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
41.09	AUTOL BN MARROW TPLNT W/PURGING	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
50.51	AUXILIARY LIVER TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
50.59	OTHER TRANSPLANT OF LIVER	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.80	PANCREATIC TRANSPLANT NOS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.81	REIMPLANTATION OF PANCREATIC TISSUE	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.82	HOMOTRANSPLANT OF PANCREAS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.83	HETEROTRANSPLANT OF PANCREAS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.85	ALLOTPLNT CELLS ISLETS LANGERHANS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
52.86	TPLNT CELLS ISLETS LANGERHANS NOS	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
55.69	OTHER KIDNEY TRANSPLANTATION	International Classification of Diseases, Ninth Revision, Clinical Modification Procedure
C9006	INJ TACROLIMUS PER 5 MG (1 AMP)	Current Procedural Terminology
C9020	SIROLIMUS TABLET 1 MG	Current Procedural Terminology
C9106	SIROLIMUS PER 1 MG/ML	Current Procedural Terminology
C9230	INJECTION ABATACEPT PER 10 MG	Current Procedural Terminology
C9239	INJECTION TEMSIROLIMUS 1 MG	Current Procedural Terminology
C9249	INJECTION CERTOLIZUMAB PEGOL 1 MG	Current Procedural Terminology
C9436	AZATHIOPRINE PARENTERL BRAND 100 MG	Current Procedural Terminology
J0129	INJ ABATACEPT 10 MG MEDICR ADM PHYS	Current Procedural Terminology
J0135	INJECTION ADALIMUMAB 20 MG	Current Procedural Terminology
J0390	INJECTION CHLOROQUINE HCL UP 250 MG	Current Procedural Terminology
J0717	INJECTION CERTOLIZUMAB PEGOL 1 MG	Current Procedural Terminology
J0718	INJECTION CERTOLIZUMAB PEGOL 1 MG	Current Procedural Terminology
J1438	INJECTION ETANERCEPT 25 MG	Current Procedural Terminology
J1602	INJECTION GOLIMUMAB 1 MG FOR IV USE	Current Procedural Terminology
J1745	INJECTION INFlixIMAB 10 MG	Current Procedural Terminology
J7500	AZATHIOPRINE ORAL 50 MG	Current Procedural Terminology
J7501	AZATHIOPRINE PARENTERAL 100 MG	Current Procedural Terminology
J7507	TACROLIMUS IMMEDIATE RELEASE ORAL 1 MG	Current Procedural Terminology
J7508	TACROLIMUS EXTENDED RELEASE ORAL 0.1 MG	Current Procedural Terminology
J7520	SIROLIMUS ORAL 1 MG	Current Procedural Terminology
J7525	TACROLIMUS PARENTERAL 5 MG	Current Procedural Terminology
J8610	METHOTREXATE ORAL 2.5 MG	Current Procedural Terminology
J9250	METHOTREXATE SODIUM 5 MG	Current Procedural Terminology
J9260	METHOTREXATE SODIUM 50 MG	Current Procedural Terminology
J9330	INJECTION TEMSIROLIMUS 1 MG	Current Procedural Terminology
042	HUMAN IMMUNODEFICIENCY VIRUS [HIV]	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
260	KWASHIORKOR	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
261	NUTRITIONAL MARASMUS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
262	OTH SEVERE PROTEIN-CALORIE MALNUTRIT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
136.3	PNEUMOCYSTOSIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
199.2	MALIG NEOPLSM ASSOC TRANSPLNT ORGAN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.2	COMBINED IMMUNITY DEFICIENCY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.3	UNSPECIFIED IMMUNITY DEFICIENCY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.4	AUTOIMMUNE DISEASE NEC	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.8	OTH SPEC D/O INVLV IMMUNE MECHANISM	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.9	UNSPEC DISORDER IMMUNE MECHANISM	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
284.1	PANCYTOPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.0	NEUTROPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.1	FUNCTIONAL D/OS NEUTROPHILS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.2	GENETIC ANOMALIES OF LEUKOCYTES	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
579.3	OTH&UNSPEC POSTSURGICAL NONABSORB	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.8	COMPLICATIONS OF TRANSPLANTED ORGAN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.0	KIDNEY REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.1	HEART REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.6	LUNG REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.7	LIVER REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.8	OTH SPEC ORGN/TISS REPLCD TPLNT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V45.1	RENAL DIALYSIS STATUS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V56.0	ENCOUNTER EXTRACORPOREAL DIALYSIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V56.1	FIT&ADJ XTRACORP DIALYSIS CATHETER	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V56.2	FIT&ADJ PERITON DIALYSIS CATHETER	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
238.73	HIGH GRADE MYELOYDYSPLSTC SYND LES	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
238.76	MYELOFIBROSIS W/MYELOID METAPLASIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
238.77	POST-TRANSPLANT LYMPHOPROLIF D/O	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
238.79	OTH LYMPHATIC&HEMATOPOIETIC TISSUES	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.00	UNSPECIFIED HYPOGAMMAGLOBULINEMIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.01	SELECTIVE IGA IMMUNODEFICIENCY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.02	SELECTIVE IGM IMMUNODEFICIENCY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.03	OTH SELECTIVE IMMUNOGLOBULIN DEFIC	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.04	CONGENITAL HYPOGAMMAGLOBULINEMIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.05	IMMUNODEFICIENCY WITH INCREASED IGM	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.06	COMMON VARIABLE IMMUNODEFICIENCY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.09	OTHER DEFICIENCY HUMORAL IMMUNITY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.10	UNS IMMUNDEF W/T-CELL DEF	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.11	DIGEORGES SYNDROME	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.12	WISKOTT-ALDRICH SYNDROME	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.13	NEZELOFS SYNDROME	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.19	OTHER DEFIC CELL-MEDIATED IMMUNITY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.41	AUTOIMMUNE LYMPHOPROLIFERATIVE SYND	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.49	AUTOIMMUNE DISEASE NEC	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.50	GRAFT-VERSUS-HOST DISEASE UNSP	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.51	ACUTE GRAFT-VERSUS-HOST DISEASE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.52	CHRONIC GRAFT-VERSUS-HOST DISEASE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
279.53	ACUTE ON CHRON GRAFT-VERSUS-HOST DZ	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
284.09	OTH CONSTITUTIONAL APLASTIC ANEMIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.00	NEUTROPENIA UNSPECIFIED	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.01	CONGENITAL NEUTROPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.02	CYCLIC NEUTROPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.03	DRUG INDUCED NEUTROPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.09	OTHER NEUTROPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.50	LEUKOCYTOPENIA UNSPECIFIED	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.51	LYMPHOCYTOPENIA	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
288.59	OTH DECREASED WHITE BLD CELL COUNT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
289.53	NEUTROPENIC SPLENOMEGALY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
289.83	MYELOFIBROSIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
403.01	HTN CHR KID DZ MAL KID DZ ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
403.11	HTN CKD BEN W/CKD STAGE V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
403.91	HTN CKD UNSPEC W/CKD STAGE V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.02	HTN H&CKD MAL W/O HF&CKD ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.03	HTN HRT & CKD MAL HF&CKD ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.12	HTN H & CKD BEN W/CKD ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.13	HTN H & CKD BEN HF & CKD ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.92	HTN H & CKD UNS W/CKD STAGE V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
404.93	HTN H & CKD UNS HF & CKD ST V/ESRD	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.80	COMPS TPLNT ORGAN UNSPEC SITE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.81	COMPLICATIONS TRANSPLANTED KIDNEY	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.82	COMPLICATIONS OF TRANSPLANTED LIVER	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.83	COMPLICATIONS OF TRANSPLANTED HEART	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.84	COMPLICATIONS OF TRANSPLANTED LUNG	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.85	COMPS BONE MARROW TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.86	COMPLICATIONS TRANSPLANTED PANCREAS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.87	COMPS TRANSPLANTED ORGAN INTESTINE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
996.89	COMPS OTH TRANSPLANTED ORGAN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.81	BONE MARROW REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.82	PERIPH STEM CELLS REPLCD TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.83	PANCREAS REPLACED BY TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.84	ORGN/TISS REPLCD TRANSPLANT INTEST	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V42.89	OTH ORGAN/TISSUE REPLCD TRANSPLANT	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
V45.11	RENAL DIALYSIS STATUS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
Inflammatory Bowel Disease		
556	ULCERATIVE COLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
550.0	INGUINAL HERNIA WITH GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
550.1	ING HERN W/OBST W/O MENTION GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
550.9	ING HERN W/O MENTION OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.0	FEMORAL HERNIA WITH GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.1	UMBILICAL HERNIA WITH GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.2	VENTRAL HERNIA WITH GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.3	DIAPHRAGMATIC HERNIA WITH GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.8	HERNIA OTHER SPEC SITES W/GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
551.9	HERNIA UNSPECIFIED SITE W/GANGRENE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.0	FEMORAL HERNIA WITH OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.1	UMBILICAL HERNIA WITH OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.2	VENTRAL HERNIA WITH OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.3	DIAPHRAGMATIC HERNIA W/OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.8	HERNIA OTH SPEC SITE W/OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
552.9	HERNIA UNSPEC SITE W/OBSTRUCTION	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.0	FEM HERN W/O MENTION OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.1	UMB HERN W/O MENTION OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.2	VENTRAL HERN W/O OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.3	DIAPHRAGMAT HERN W/O OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.8	HERN-OTH ABD CAV NO OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
553.9	HERN ABD CAV W/O OBST/GANGREN	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
555.0	REGIONAL ENTERITIS SMALL INTESTINE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
555.1	REGIONAL ENTERITIS LARGE INTESTINE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
555.2	RGN ENTERITIS SM INTEST W/LG INTEST	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
555.9	REGIONAL ENTERITIS UNSPECIFIED SITE	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis

Appendix D. Codes and Generic Names used to Define Covariates in this Request

Code	Description	CodeType
556.0	ULCERATIVE ENTEROCOLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.1	ULCERATIVE ILEOCOLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.2	ULCERATIVE PROCTITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.3	ULCERATIVE PROCTOSIGMOIDITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.4	PSEUDOPOLYPOSIS OF COLON	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.5	LEFT SIDED ULCERATIVE COLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.6	UNIVERSAL ULCERATIVE COLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.8	OTHER ULCERATIVE COLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis
556.9	UNSPECIFIED ULCERATIVE COLITIS	International Classification of Diseases, Ninth Revision, Clinical Modification Diagnosis

Specifications for to16_cap_mpl2r_wp002_nsdp_v03

FDA has requested the execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 2.0.2 to assess the ability of Mini-Sentinel/Sentinel prospective surveillance tools to reproduce the known association between Clindamycin and Clostridium difficile, compared to Penicillin.

Enrollment Gap: 45 days
 Age Groups: <18, 19-49, 50-64,65+
 Query Period: January 1, 2006 - December 31, 2013
 Coverage Requirement: Medical and Drug Coverage
 Enrollment Requirement: 183 days

		Run 1		Run 2	
		Exposure of Interest	Comparator of Interest	Exposure of Interest	Comparator of Interest
		Oral Clindamycin	Oral Penicillin	Oral Clindamycin	Oral Penicillin
Drug/ Exposure:	Incident w/ respect to:	Oral Penicillins, Clostridium difficile Treatment Antibiotics	Oral Clindamycin, Clostridium difficile Treatment Antibiotics	Oral Penicillins, Clostridium difficile Treatment Antibiotics	Oral Clindamycin, Clostridium difficile Treatment Antibiotics
	Washout (days)	183	183	183	183
	Cohort Definition	01	01	01	01
	Episode Gap	0	0	0	0
	Exposure Extension Period	0	0	0	0
	Minimum Episode Duration	0	0	0	0
	Minimum Days Supplied	0	0	0	0
	Follow up Duration (days)	60	60	60	60
Tuncate on Death	Yes	Yes	Yes	Yes	
Inclusion/ Exclusion:	Criteria	Clostridium difficile diagnosis	Clostridium difficile diagnosis	Clostridium difficile diagnosis	Clostridium difficile diagnosis
	Include or Exclude	Exclude	Exclude	Exclude	Exclude
	Lookback Start	-183	-183	-183	-183
	Lookback End	-1	-1	-1	-1
Inclusion/ Exclusion:	Criteria	Prescription for any anti- microbial	Prescription for any anti- microbial	Prescription for any anti- microbial	Prescription for any anti- microbial
	Include or Exclude	Exclude	Exclude	Exclude	Exclude
	Lookback Start	-60	-60	-60	-60
	Lookback End	-1	-1	-1	-1
Event/ Outcome:	Event/ Outcome	Clostridium difficile	Clostridium difficile	Clostridium difficile combo outcome	Clostridium difficile combo outcome
	Care Setting/PDX	IP	IP	ED, AV	ED, AV
	Incident w/ respect to:	Clostridium difficile	Clostridium difficile	Clostridium difficile	Clostridium difficile
	Washout (days)	183	183	183	183
	Blackout Period	0	0	0	0
Propensity Score Match (PSM) Analysis:	PSM Ratio		1:1		1:1
	PSM Caliper		0.025		0.025
	Covariate evaluation window (days)		183		183
	Perform HDPS Analysis		No		No

National Drug Codes (NDCs) checked against First Data Bank's "National Drug Data File (NDDF®) Plus"
 ICD-9-CM diagnosis and procedure codes checked against "Ingenix 2012 ICD-9-CM Data File" provided by OptumInsight
 HCPCS codes checked against "Optum 2012 HCPCS Level II Data File" provided by OptumInsight
 CPT codes checked against "Optum 2012 Current Procedure Codes & Relative Values Data File" provided by OptumInsight